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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/775,889	02/09/2004	Thadeus Schauer	226465	1284
23460	7590	12/08/2004		
LEYDIG VOIT & MAYER, LTD TWO PRUDENTIAL PLAZA, SUITE 4900 180 NORTH STETSON AVENUE CHICAGO, IL 60601-6780				EXAMINER
				TUROCY, DAVID P
			ART UNIT	PAPER NUMBER
			1762	

DATE MAILED: 12/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/775,889	SCHAUER ET AL.	
	Examiner David Turocy	Art Unit 1762	
<i>-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --</i>			
<b>A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.</b>			
<ul style="list-style-type: none"> <li>- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.</li> <li>- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.</li> <li>- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.</li> <li>- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).</li> </ul>			
<b>Status</b>			
1) <input type="checkbox"/> Responsive to communication(s) filed on _____. 2a) <input type="checkbox"/> This action is <b>FINAL</b> .                    2b) <input checked="" type="checkbox"/> This action is non-final. 3) <input type="checkbox"/> Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under <i>Ex parte Quayle</i> , 1935 C.D. 11, 453 O.G. 213.			
<b>Disposition of Claims</b>			
4) <input checked="" type="checkbox"/> Claim(s) <u>1-16</u> is/are pending in the application. 4a) Of the above claim(s) _____ is/are withdrawn from consideration. 5) <input type="checkbox"/> Claim(s) _____ is/are allowed. 6) <input checked="" type="checkbox"/> Claim(s) <u>1-16</u> is/are rejected. 7) <input type="checkbox"/> Claim(s) _____ is/are objected to. 8) <input type="checkbox"/> Claim(s) _____ are subject to restriction and/or election requirement.			
<b>Application Papers</b>			
9) <input checked="" type="checkbox"/> The specification is objected to by the Examiner. 10) <input checked="" type="checkbox"/> The drawing(s) filed on <u>06 April 2004</u> is/are: a) <input checked="" type="checkbox"/> accepted or b) <input type="checkbox"/> objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d). 11) <input type="checkbox"/> The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.			
<b>Priority under 35 U.S.C. § 119</b>			
12) <input type="checkbox"/> Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f). a) <input type="checkbox"/> All    b) <input type="checkbox"/> Some * c) <input type="checkbox"/> None of: 1. <input type="checkbox"/> Certified copies of the priority documents have been received. 2. <input type="checkbox"/> Certified copies of the priority documents have been received in Application No. _____. 3. <input type="checkbox"/> Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)). * See the attached detailed Office action for a list of the certified copies not received.			
<b>Attachment(s)</b>			
1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>2/9/2004, 6/21/2004, 11/1/2004</u>		4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____. 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6) <input type="checkbox"/> Other: _____.	

## DETAILED ACTION

### ***Specification***

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The abstract of the disclosure is objected to because it includes claim language, such as "means", line 2, therefore it is improper. Correction is required. See MPEP § 608.01(b).

3. The disclosure is objected to because of the following informalities:

- a. Specification includes language referring to specific claims, which needs to be removed, i.e. page 2, paragraph 4.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-5, 8, 10, 12, and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 3393162 by Cox et al ("Cox").

Claims 1,12, and 16: Cox teaches of a method of coating pigment particles with an organic polymeric material (Column 1, lines 13-15). Cox teaches using a polymer solution with a derivatized carboxyl substituent group, which is solvolyzed to make the polymer less soluble (Example 4).

Claim 2: Cox discloses that the solvolysis is carried out only partially (Column 3, lines 55-57).

Claim 3: Cox discloses using a methyl methacrylate in the polymer solution (Example 4). A copolymer of a methyl methacrylate inherently contains an unsaturated group in either the backbone or the side chain of the polymer.

Claim 4 and 5: Cox discloses that the polymer solution, having an active group, comprising methyl methacrylate, methacrylic acid and glycidyl methacrylate, is

crosslinked on the particle surface (Column 3, lines 67-71). The active carboxyl group on the methacrylate inherently serves to immobilize the polymer to the surface.

Claims 8 and 10: Cox discloses coating a pigment substrate with a precipitated component of the polymer solution to be a random copolymer of methyl methacrylate and methacrylic acid in a ratio of 20:1 (Column 3, Table 2). Methyl methacrylate and methacrylic acid have molar masses of 100.117 and 86.0902 g/mol respectively. Therefore the precipitated component inherently has a molar mass of 2088.4302 g/mol and factor thereof ( $20 \times 100.117 + 86.0902 = 2088.4302$ ), which lies within the range as claimed.

6. Claims 1, 12, 14-15 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 3993716 by Klein et al ("Klein").

Claims 1, 12, 14 and 15: Kline teaches of contacting a substrate with a polymer dispersion (Column 14, lines 35-40). Klein discloses grafting vinyl monomers onto a soluble acrylic copolymer with methacrylic monomer backbone polymer to form showing reduced solubility (column 4, lines 45-58). Klein discloses utilizing hydroxyl and/or carboxyl monomers (Column 5, lines 33-70). Klein discloses utilizing coating a steel panel with the coating dispersion (Column 15, lines 62).

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 3393162 by Cox et al ("Cox") in view of "Addition Polymerization". Encyclopedia of Polymer Science and Engineering. Volume 1. New York. Pg 470-471.

Cox teaches all the limitations of these claims as discussed above in the 35 USC 102(b) rejection except, however, Cox fails to teach of a crosslinking reaction is a free-radical, addition, or condensation reaction.

However, "Addition Polymerization" teaches that methacrylates are known in the art to crosslink using addition polymerization (Paragraph 3).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify Cox to use the addition crosslinking reaction as suggested by "Addition Polymerization" to provide a desirable crosslinking because Cox teaches of using a crosslinking reaction to bond a methacrylate polymer to the substrate surface and "Addition Polymerization" teaches that methacrylate polymers are known in the art to crosslink using a addition reaction.

10. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 3393162 by Cox et al ("Cox") in view of "Surface Treatment of Organic Pigments". Pigment Handbook. Volume III. Page 165.

Cox teaches all the limitations of these claims as discussed above in the 35 USC 102(b) rejection except, however, Cox fails to teach washing the surface of the substrate following immobilization of the polymer.

"Surface Treatment of Organic Pigments" teaching of coating organic or inorganic pigments utilizing a polymer dispersion discloses that after coating, the pigment is filtered, washed, and dried (Right Column, 2<sup>nd</sup> Paragraph).

Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify Cox to use the post coating wash step suggested by "Surface Treatment of Organic Pigments" to provide a desirable polymer coating to a pigment particle because Cox teaches coating a pigment particle with a polymer dispersion and "Surface Treatment of Organic Pigments" teaches that it is known in the art to wash the pigment particles after coating with an polymeric dispersion.

11. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 3993716 by Klein et al ("Klein").

Klein teaches all the limitations of these claims as discussed above in the 35 USC 102 (b) rejection, except, Klein fails to explicitly teach of a polymer have a molar mass from 1000 to 500000 g/mol. However, it is the examiners position that molar mass of a polymer is a cause effective variable and it is well settled that determination of optimum values of cause effective variables such as these process parameters is within the skill of one practicing in the art. *In re Boesch*, 205 USPQ 215 (CCPA 1980).

12. Claims 11, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 3393162 by Cox et al ("Cox") in view of US Patent 3884871 by Herman et al ("Herman").

Cox teaches all the limitations of these claims as discussed above in the 35 USC 102(b) rejection, however, Cox fails to teach of a forming a nano layer on the surface of the substrate.

Herman, teaching of a process of coating pigment particles with a polymer solution comprising methyl methacrylate and methacrylic acid, discloses that the particles measured were 0.25 – 0.26 micron in diameter both before and after coating (Example 1, Column 6, lines 32-36). It is the examiners position that a coating thickness that does not change the diameter in the micron scale inherently provides a coating thickness in the nano scale.

Therefore, it would have been obvious to one skilled in the art at the time of the invention to modify Cox to use the nanolayer suggested by Herman to provide a desirable pigment coating because Cox teaches using a methacrylate polymer solution to coat a pigment particulate and Herman teaches that it is desirable to coat a pigment particle with a nanolayer from a methacrylate polymer solution.

***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Marie, Emmanuelle. "The Controlled Solvolysis of Ethylene-Vinyl Acetate Copolymers". ACS Publications. July 21, 2001. teaches of controlling the solvolysis of polymer solution. US 5124181 teaches of coating materials with polymers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Turocy whose telephone number is (571) 272-2940. The examiner can normally be reached on Monday-Friday 8:30-6:00, No 2nd Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (571) 272-1415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David Turocy  
AU 1762

  
KATHERINE BARFORD  
PRIMARY EXAMINER